PROCEDURES FOR THE CHECKING OF CRITICAL DIMENSIONS OF THE CONICAL MOLD AND TAMPER AND THE CALIBRATION OF PYCNOMETERS AASHTO T 84

A. PURPOSE

These procedures are intended to provide instruction for the verification of critical dimensions of the conical mold and tamper.

B. APPARATUS REQUIRED

1. Calibrated calipers readable to 0.001 inch (.025 mm)
2. Calibrated balance capable of weighing 500 grams and readable to 0.1 gram.
3. Straightedge or ruler.
4. Thermometer readable to 0.1 °F or 0.1 °C.

C. PROCEDURE

Conical Cone

1. Measure the inside diameter of the top of the conical cone to the nearest 0.001 inch (.025 mm) by taking two (2) readings 90° apart with calipers and record results.
2. Invert cone and repeat Step 1 and record.
3. Place cone on a flat glass plate. Measure and determine the height of the cone by using the calipers and a straightedge and record results.
4. Measure and record the thickness of the cone to the nearest 0.001inch (.025 mm) with calipers by taking two (2) readings 90° apart on the top and bottom of cone.

Tamper

1. Measure diameter of face of tamper by taking two (2) readings 90° apart.
2. Weigh and record weight of tamper to nearest 0.1 gram.

Pycnometers

Volumetric Flask (500 cm) calibrated annually at 21.3 °C – 24.7 °C (70.4 °F – 76.4 °F) by the following procedure:

1. Volumetric flasks are weighed empty and recorded to the nearest 0.1 gram.
2. Volumetric flasks are filled with water to the mark at which it is calibrated.
3. The flasks are then put in a constant temperature water bath for one (1) hour to adjust the water temperature to 21.3 °C - 24.7 °C (70.4 °F – 76.4 °F) and weighed to the nearest 0.1 gram and recorded.

D. TOLERANCE

The critical dimensions of the conical and tamper and the calibration of the pycnometers shall meet the requirements specified in AASHTO Test Method T 84.

EQUIPMENT VERIFICATION RECORD

Verified By: _____ Date: _____

Equipment: Conical Mold, Tamper, Pycnometers Location (Lab): _____

Identification No.: _____ Verification Frequency: 24 months

Previous Verification Date: _____ Next Due Date: _____

Verification Equipment Used: Calibrated calipers (readable to 0.001 in. [0.254 mm]), SN: _____

Ruler (12 in. [300 mm] and readable to 0.01 in. [.254 mm]), ID No.: _____

Calibrated thermometer (readable to 1.0 ºF or ºC), SN: _____ Calibrated balance

(readable to 0.1 g and with a capacity of 3,000 g), SN: _____

Verification Procedure: (In-house) OMR-CVP-19 / AASHTO T 84

1. PYCNOMETER:
   A. Volumetric Flask (500 mL) calibrated annually at 21.3 ± 24.7 ºC by the following procedure:
      1. Volumetric flasks are weighed empty and weights are recorded to the nearest 0.1 g.
      2. Volumetric flasks are then filled with water to the mark at which it is calibrated.
      3. The flasks are then put in a constant temperature water bath for one hour to adjust the water temperature to 21.3 ± 24.7 ºC and then weighed to the nearest 0.1 g.

Flask No.	Flask Wt.	Flask Wt. & Water @ (21.3 ± 24.7 ºC)	Flask No.	Flask Wt.	Flask Wt. & Water @ (21.3 ± 24.7 ºC)	Flask No.	Flask Wt.	Flask Wt. & Water @ (21.3 ± 24.7 ºC)
1			10			19		
2			11			20		
3			12			21		
4			13			22		
5			14			23		
6			15			24		
7			16			25		
8			17			26		
9			18			27		

2. CONICAL MOLD: QC NO.:_____
   A. Diameter at top 1.4 – 1.6 in. (37 – 43 mm) ..... _____
   B. Diameter at bottom 3.4 ± 3.6 in. (87 – 93 mm)..... _____
   C. Height 2.8 ± 3.0 in (72 – 78 mm) ..... _____
   D. Metal thick enough to avoid distortion 20-gauge or 0.8 mm ..... _____

3. TAMPING ROD: QC No.: _____
   A. Weight 324 – 355 g .....
   B. Flat circular tamping face? ..... _____
   C. Diameter of tamping face 22 – 28 mm? ..... _____